A NON−POINT SOURCE OF CONTAMINANTS TO THE ESTUARINE FOOD WEB:

#0070

Technical Panel Review

Proposal Name: A NON−POINT SOURCE OF CONTAMINANTS TO THE ESTUARINE FOOD WEB:

Applicant Organization: University of South Carolina

Principal Lead Investigator(s):
Torres, Raymond
Goni, Miguel
Bergamaschi, Brian
Fleck, Jacob

Amount Requested: $877,982

TSP Panel Summary of Findings:

This project is of high relevance to CALFED and will serve to establish the importance of shallow water habitat both in preservation and in restoration. The project partners are all well−known and well−qualified for the study. The extensive background statement and literature review in the proposal, much of which is based on the works of this team, is a strength. There seems to be no question that the processes described in the proposal are operating within the Bay−Delta system, given the influx of contaminants such as Hg into the system, etc. The panel is confident that this study will give a much more detailed and clearer picture of the processes and perhaps will provide some guidance to managers on how to use the information.

However, a regionally−based model that will identify the areas where biota would be most susceptible, and could be used to forecast the effects of land−use and climate change on the magnitude of the effects, is promised but not described in detail. The project budget is either $899,982 or $752,683 (depending on which table you look at), both of which the panel feels are high. There was also some question about why exposure to mercury was cited, when exposure to methyl−mercury is more important.

Relevance to PSP Topic Areas:

High

TSP Technical Rating:
Above Average

TSP Funding Recommendation:
Fund w/conditions

TSP Amount Recommended: $**790,000**

Conditions:

The panel recommends that the project budget be reduced by 10%. It felt the budget had enough money to make adjustments on equipment and still be able to meet all of the deliverables proposed.

External Technical Review #1

Proposal Title: A NON−POINT SOURCE OF CONTAMINANTS TO THE ESTUARINE FOOD WEB:

Proposal Number: 0070

Proposal Applicant: University of South Carolina

Purpose

Comments	**Yes, the objectives and hypotheses are very clear and consistent. The project addresses a timely subject. The project is based on well−established analytical methods. The main novelty will be in the development of an exposure model that integrates the main drivers of contaminant mobilization. The role of rainfall in mobilizing particulate organic matter (including contaminants) in coastal ecosystems is not widely appreciated. Certainly interactions between rainfall−facilitated particulate organic carbon mobilzation and contaminant fate has only been investigated to a limited extent previously. The inherent association of nutritious material and and toxic contaminants is an important issue for understanding food web transfer of contaminants.**
Rating	**Superior**

Background

Comments	**Yes, the introduction to the proposal does an excellent job of explaining the scope and importance of the issues to be investigated. Appropriate reference is made to the relevant literature. The applicant demonstrates a high degree of understanding of the research area.**
Rating	**Superior**

Approach

Comments	**Yes, the approach is well designed with sufficient attention given to detailed methods and logistics. A very useful summary table of the field and laboratory methods with appropriate references is provided on p. 32−27. Whereas most of the methods are well established and widely used, the project also includes some newer optical methods. The approach proposed for separating wind and rain effects on particle mobilization is interesting. Project management has been described in detail and the PI seems to be experienced in data management from previous projects. The plan for dissemination is fairly standard (conferences, website, etc.) but sufficient. The main products of value will be in terms of the provision of large amounts of abiotic data (that will be made available on the project's website), which could be of great use to other ongoing research in the region. Also the main product will be an exposure model that can be used for scenario analysis. I would have liked to see more details on the exposure model and how this will be developed, including a discussion of assumptions.**
Rating	**Superior**

Feasibility

Comments	**The project is highly feasible. Detailed attention has been given to the methods and the field campaigns and there should be no major issues with the proposed methods/instruments to be used. The scale of the project is suitable to meet the projects objectives with an adequate but do−able number of field stations chosen for study. The PI has previous experience with studies of this kind, the other partner organizations are suitably qualified to fulfill their tasks. Overall I evaluate the project to have a high likelihood of success.**
Rating	

	Superior

Budget

Comments	**The budget is very clear and seems highly reasonable(definitely not inflated).**
Rating	**Superior**

Relevance To CALFED

Comments	**The project is directly relevant for understanding effects of changes in key abiotic drivers on habitats and communities of key species. The project has relevance both in terms of restoration as well as to planning (e.g., in response to sea level changes). The project addresses all of the other prioities stated in the PSP. Namely, the project will integrate hydrodynamic, meteorological, physical and chemical data (interdisciplinary) in the form of a regional model of exposure probability. The project makes use of data from an already established monitoring network and will develop a model.**
Rating	**Superior**

Qualifications

Comments	**There was only a CV provided for the PI, Torres. It is clear that he has a solid track record both in terms of publications in peer−reviewed journals on related subjects and in terms of previous grant success. I am unable to evaluate Goni from the information provided in the application. Other partners include Frontier Geosciences and USGS, both of which are undoubtedly qualified to perform the services needed in the present proposal.**
Rating	**Superior**

Overall Evaluation Summary Rating

Comments	**Overall, I believe this is an excellent proposal that addresses an important topic for the region. It is feasible and fits within the scope of the CALFED programme.**
Rating	**Superior**

External Technical Review #2

Proposal Title: A NON−POINT SOURCE OF CONTAMINANTS TO THE ESTUARINE FOOD WEB:

Proposal Number: 0070

Proposal Applicant: University of South Carolina

Purpose

Comments	**This is a well−designed study with clearly defined goals, objectives and hypotheses. The study, while focusing on California issues, is relevant to wide range of problems nationally and globally, and will directly affect my (and many others') research. The research is clearly intended to extend our knowledge of critical factors related to nutrient processes in these systems, and the project is an excellent approach for clarifying processes in a complex system.**
Rating	**Superior**

Background

Comments	**Having studied the stated problem in other systems, I am keenly aware of the problems to be addressed in this study, and the proposal makes an excellent case for why these problems need to be addressed. The scientific basis is well documented, and the information required is provided.**
Rating	**Superior**

Approach

Comments	**The experimental approach is excellent. Having studied similar systems, it comes at an opportune time in that a wide range of**

	scientists will benefit from the proposed research approach. Rather than acting at the margins of science, this proposal provides a sound strategy for addressing key uncertainties on a topic of concern to many.
Rating	**Superior**

Feasibility

Comments	**While I am unfamilier with the specific sites under investigation, the proposal appears to consider the myriad details associated with working in this environment. The breadth and depth of the approach is what impresses me, in that highly sophisticated approaches are presented, along with the credible individuals and resources needed to accomplish them.**
Rating	**Superior**

Budget

Comments	**The budget seems appropriate, well defined, and well thought out. The costs and resources required to conduct proposed research are clearly defined and consistent with the goals of the study. I have been critical in the past of proposals with ambiguous expenses, which this proposal avoids.**
Rating	**Superior**

Relevance To CALFED

Comments	**Based on the information provided, the proposal is directly relevant to the CALFED research priorities. Of greater interest to me is the relevance to issues of national and international importance, which is an additional metric that I would use. For both criteria, I give this proposal high marks based on my knowledge of the subject. The information and understanding generated from this proposal will provide improved management**

	of aquatic and terrestrial resources, and will assist the development of sound resource policies. In my region (Southeastern U.S.) the research questions and hypotheses go to the core of resource management, and the transferability to other systems is clear.
Rating	Superior

Qualifications

Comments	The research team is exemplary. The qualifications of the principal investigators are excellent, and I am convinced that the research productivity of this group will be of the highest caliber.
Rating	Superior

Overall Evaluation Summary Rating

Comments	Having reviewed several proposals in previous years for Calfed – some good and some poor – this is one of the best I have seen. It has clearly defined objectives, a clear and appropriate research approach, an appropriate budget, and effective research team. I give this my highest rating.
Rating	Superior

External Technical Review #3

Proposal Title: A NON−POINT SOURCE OF CONTAMINANTS TO THE ESTUARINE FOOD WEB:

Proposal Number: 0070

Proposal Applicant: University of South Carolina

Purpose

Comments	**The goals are clearly stated and consistent. The idea is interesting but the premise seems a bit academic rather than applied to me. I agree that rain and wind may resuspend surficial particles, but really there is nothing we can do about it. You can't regulate the rain and wind. I am unsure of how much this would actually add to the contaminant load in the system. The contaminants are already in the system so maybe a rain driven event might speed along the dispersal, but they would eventually make their way into the system, albeit a bit slower. In addition, I am unsure of the extent of the "lower marsh" delta area. The Southeast surely has many many acres of marshland, but that is very unlike Calif.'s rocky high energy coastal areas and the inland delta is largely agricultural, which has a whole host of other problems. The results will add to the base of knowledge, but I'm not sure how practical that knowledge is in managing California's waterways.**
Rating	**Sufficient**

Background

Comments	**The conceptual model is clearly stated. The proposal is interesting from a geochemical perspective. I am a little concerned about the one line statement that**

	they plan to perform Me−Hg partitioning experiments on page 12 (At least I assume it is Me−Hg, it is mispelled on my copy.). This seems a bit cavalier to me. Me−Hg is a very toxic contaminant that requires serious safety precautionsand more detailed planning. While I am sure the PI may have that knowledge, he did not share it with us.
Rating	Above Average

Approach

Comments	The approach is well designed, but the details have not been well designed. The number of samples taken at each sampling event and the number of sampling events were not clear. I did not look carefully at the budget.
Rating	Sufficient

Feasibility

Comments	The project seems ambitious to me. Especially with the PI in South Carolina. In order to characterize particles the PI plans to correlate optical properties with laboratory measurements. I don't believe that optical properties are specific enough to identify the sources of high nutrient or high contaminant constituents in the water column. If they are, the author does not offer any citations.
Rating	Sufficient

Budget

Comments	I did not go over the budget carefully
Rating	Sufficient

Relevance To CALFED

Comments	**I beleive the proposal tangentially addresses a Calfed priority, INformation from the proposal amy be used for basic research to understand dynamics in the Bay.**
Rating	**Inadequate**

Qualifications

Comments	**The authors appear to have a good track record and be qualified in their respective areas.**
Rating	**Above Average**

Overall Evaluation Summary Rating

Comments	**The proposal is an interesting one, but I beleive it may be difficult to translate the results directly to management action to improve water quality.**
Rating	**Sufficient**